

Serial No. 10/627,132
Amendment Dated June 10, 2005
Reply to Office Action of March 11, 2005

Amendments to the Claims:

This listing of claims will replace all prior versions and listings of the claims in the application:

Listing of Claims:

1. (Currently amended) An isolated nucleic acid comprising a member polynucleotide encoding a functional cellulose synthase, said polynucleotide selected from the group consisting of:
 - (a) a polynucleotide having at least 90 70% sequence identity, as determined by the GAP algorithm under default parameters, to a polynucleotide ~~selected from the group consisting of SEQ ID NOS: 25, 27 and 29, wherein the polynucleotide encodes a functional cellulose synthase;~~
 - (b) a polynucleotide encoding a polypeptide ~~selected from the group consisting of SEQ ID NOS: 26, 28 and 30;~~
 - (c) ~~a polynucleotide amplified from a Zea mays nucleic acid library using primers which selectively hybridize, under stringent hybridization conditions, to loci within a polynucleotide selected from the group consisting of SEQ ID NOS: 25, 27 and 29;~~
 - (d) ~~a polynucleotide which selectively hybridizes, under stringent hybridization conditions and a wash in 0.1X SSC at 65°C, to a polynucleotide selected from the group consisting of SEQ ID NOS: 25, 27 and 29;~~
 - (e) ~~a polynucleotide selected from the group consisting of SEQ ID NOS: 25, 27 and 29; and~~
 - (f) a polynucleotide which is complementary to a polynucleotide of (a), (b), or (c), (d), or (e); and

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(g) — a polynucleotide comprising at least 25 contiguous nucleotides from a polynucleotide of (a), (b), (d), (e), or (f).

2. (Currently amended) A recombinant expression cassette, comprising a member the polynucleotide of claim 1 operably linked, in sense or anti-sense orientation, to a promoter.
3. (Original) A host cell comprising the recombinant expression cassette of claim 2.
4. (Original) A transgenic plant comprising the recombinant expression cassette of claim 2.
5. (Original) The transgenic plant of claim 4, wherein said plant is a monocot.
6. (Original) The transgenic plant of claim 4, wherein said plant is a dicot.
7. (Original) The transgenic plant of claim 4, wherein said plant is selected from the group consisting of: maize, soybean, sunflower, sorghum, canola, wheat, alfalfa, cotton, rice, barley, millet, peanut, and cocoa.
8. (Currently amended) A transgenic seed from the transgenic plant of claim 4.
9. (Currently amended) A method of modulating the level of cellulose synthase in a plant cell, comprising:

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- (a) introducing into a plant cell a recombinant expression cassette comprising a polynucleotide of claim 1 operably linked to a promoter; and
- (b) culturing the plant cell under plant cell growing conditions; wherein the level of cellulose synthase in said plant cell is modulated. and
- (c) ~~expressing said polynucleotide for a time sufficient to modulate the level of cellulose synthase in said plant cell.~~

10. (Currently amended) The method of claim 9, wherein the plant cell is ~~is from a plant selected from the group consisting of:~~ maize, soybean, sunflower, sorghum, canola, wheat, alfalfa, cotton, rice, barley, millet, peanut, and cocoa.

11. (Currently amended) A method of modulating the level of cellulose synthase in a plant, comprising:

- (a) introducing into a plant cell a recombinant expression cassette comprising a ~~the~~ polynucleotide of claim 1 operably linked to a promoter;
- (b) culturing the plant cell under plant cell growing conditions; and
- (c) regenerating a plant from said plant cell; wherein the level of cellulose synthase in said plant is modulated. and
- (d) ~~expressing said polynucleotide for a time sufficient to modulate the level of cellulose synthase in said plant.~~

12. (Original) The method of claim 11, wherein the plant is selected from the group consisting of: maize, soybean, sunflower, sorghum, canola, wheat, alfalfa, cotton, rice, barley, millet, peanut, and cocoa.

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13. (Withdrawn) An isolated protein comprising a member selected from the group consisting of:
 - (a) a polypeptide of at least 20 contiguous amino acids from a polypeptide selected from the group consisting of SEQ ID NOS: 26, 28 and 30;
 - (b) a polypeptide selected from the group consisting of SEQ ID NOS: 26, 28 and 30;
 - (c) a polypeptide having at least 70% sequence identity to, and having at least one epitope in common with, a polypeptide selected from the group consisting of SEQ ID NOS: 26, 28 and 30, wherein said sequence identity is determined by the GAP algorithm under default parameters; and,
 - (d) at least one polypeptide encoded by a member of claim 1.
14. (Withdrawn) A method of modifying expression of a cellulose synthase gene in a maize plant, comprising:
 - (a) identifying, from a population of maize plants mutagenized with the *Mu* transposable element, those plants containing one or more *Mu* insertions within a polynucleotide of claim 1;
 - (b) selecting those plants showing modified cellulose syse gene expression.
15. (Withdrawn) The method of claim 14, where expression of the cellulose synthase gene is down-regulated.